Residential Working Group Meeting 1/24/11 #3 Handout

James River and Tributaries – Richmond TMDL Implementation Plan Development

Goochland, Powhatan, Henrico, Chesterfield Counties and City of Richmond, VA

Facilitator: *Margaret Smigo, DEQ*

Recorder: *Kelley West, DEQ*

All previous meeting minutes and handouts at: http://www.deq.virginia.gov/tmdl/ipproj.html

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Introductions & Attachments (5 mins)

Accounting for Residential BMPs Installed (5 mins)

Chesterfield Co has documented their failing septic system repairs in GIS. These files were used to update failing septic repair needs in the subwatersheds within Chesterfield Co. The data was used to subtract repairs from the original failing septic system estimates and these updates are in Table 1.

Residential Waste Treatment BMPs Needed (15 mins)

A "JR Richmond" specific area was added to this table; the drainage area includes only the subwatersheds 7,8,9,59,51,50,47,76,58,56,55. The estimates for this segment are still included in the JR (James River) riverine estimates. All residential waste treatment systems will be places in the StageI of the project.

The Tuckahoe Creek impairment was added to this IP project. The TMDL was developed for Tuckahoe Creek in 2004 and is available on the DEQ website. The estimated values for BMPs for Tuckahoe Creek were derived from subwatersheds 26,27,28 of the James River (riverine). The estimates were taken out of the previous JR riverine values, then added here as the Tuckahoe values. Please see Figure 7 for map.

Table 1. Updated Estimated Residential Waste Treatment BMPs Needed (non-cumulative).

Impairment	Number of Homes	Potential Failing Septic Systems	Potential Straight Pipes	Estimated Septic Systems Repairs	Estimated New Septic Systems Needed	Estimated Alternative Systems Needed	Estimated Sewer Hook-ups Needed	Estimated Septic System Pump-Outs Needed
Almond	3,262	35	2	10	25	2	?	148
Bernards	2,266	43	3	12	32	2	?	601
Falling	45,811	152	7	43	108	8	?	2,853
Gillies	17,768	81	21	23	75	4	?	281
Goode	7,758	4	2	1	5	0	?	37
JR (riverine)	26,353	505	53	144	389	25	?	2,626
JR (tidal)	52,927	470	60	134	372	24	?	4,797
No Name	869	6	1	2	5	0	?	51
Powhite	11,053	44	4	13	33	2	?	644
Reedy	9,311	5	4	1	8	0	?	59
Tuckahoe	36,455	274	60	78	242	14	?	1,241
Total	213,833	1,619	217	**388**	**1,126**	**69**	?	**13,338**
JR (riverine) Richmond	10,065	2	1	1	2	0	?	9

ATTENTION: The JR (tidal) segment TMDL did not require bacteria reductions to residential land-based loads. However, it is assumed that stakeholders want the number of failing septic system estimates and costs to repair these in the IP (usually include 100% correction of straight pipes and failing systems regardless of need for reductions).

Questions for the group:

- Do any municipalities have information or estimates that would help determine which areas would be feasible for Sewer Hook-up?
- Do any municipalities have estimates for the number composting toilets or other "Alternative" Residential Waste Treatment systems already installed in each watershed?
- Is City of Richmond and VDH looking into the differences in homes with septic systems in VDH data (~140) and homes with only water connections in Richmond data (~1300)? Henrico? Powhatan? Goochland?

Residential NPS BMPs Needed (25 mins)

Table 2 shows the estimated number of residential pet waste composters needed. All pet waste composter needs will be places in the StageII of the project. The amount of residential pet waste composters needed was

minimized by utilizing more stormwater BMPs. If the amounts and/or types of SW BMPs change after the next Working Group meetings, these values will most likely change also.

Table 2. Estimated Residential land-based BMPs Needed.

Control Measure Unit	Pet Waste Composters Number
Almond Creek	500
Bernards Creek	549
Falling Creek	0
Gillies Creek	2,550
Goode Creek	0
James River (riverine)	4,189
James River (tidal)	0
No Name Creek	0
Powhite Creek	0
Reedy Creek	0
Tuckahoe Creek	5,795

Instead of indicating that each impaired watershed needs a Pet Waste Education Program BMP, it makes sense to group the impaired areas by Municipality (County of City), SWCD, Park, or Common Area. Parks mentioned: Reedy Creek Park, Forest Hill Park.

A survey from Wisconsin shows 35% of people who walk their dog do not pick up after them (http://waterstarwisconsin.org/files/file_45317.pdf). A survey in Boulder, CO showed an 85% compliance with a Leave No Trace program that included picking up after pets (http://www.lnt.org/programs/frontcountry.php). There are varying %efficiencies with any dog waste pick-up program. MapTech uses a 75% reduction in dog bacteria from a pet-waste pick-up program. All pet waste pick-up program needs will be places in the StageI of the project.

Questions for the group:

- What areas already have pet-waste stations? How many?
- What municipalities already have a pet pick-up ordinance?
- What other parks/highway rest stops/community dog areas are in each watershed? How many stations would each need?
- What volunteer organizations/municipalities/agencies could install, maintain, empty trash cans?

Residential BMP Cost Estimates (15 mins)

The costs in Table 3 were updated based on information and discussion from the previous WG meetings. The original Pet Waste Education Program BMP cost ($3,750) was from a previous TMDL in a rural area, which

included signs, mailings, and pet stations set at a rough $750 for 5 years. This cost should be updated to specifically address the needs of the impairments in this project. The "Education to Vet Clinics/SPCAs/Pounds/Shelters/Hunt Clubs" item in Table 3 refers to an idea that educational materials could be given to local pet shelters to be distributed to clients and posted in the lobby/common area, as well as, educating the management of these establishments in the proper practices in pet waste cleanup for their kennels. Establishments that wash off dog kennels could install septic systems with retro-fit filters to prevent hair clogs. **IDEA:** Municipalities could gain income if an ordinance includes fines to people who do not pick up after their pet in common areas.

Table 3. Estimated Costs of Residential BMPs.

Residential Control Measure	Unit	Cost per Unit
Septic Systems Pump-outs (RB-1)	System	$450
Septic System Repair (RB-3)	System	$3,500
Septic System Installation/Replacement (RB-4)	System	$8,000
Alternative Waste Treatment System Installation (RB-5)	System	$20,000
Pet Waste Education Program:	System	varies
Pet Waste Station:		
Baggy Station	Station	$70
Baggy and Sign Station	Station	$140
Baggy, Sign and Waste Basket Station	Station	$170
Bag Refills	320 bags	$30
Signs	1 sign	$40
Mailings	500 postcards + postage $0.28 each	$180
Educational Booth at Community Events	Each	?
Education to Vet Clinics/SPCAs/Pounds/Shelters/Hunt Clubs	Each Visit	?
Pet Waste Composters	Composters	$50

Pet Waste Station:
http://www.petwasteeliminator.com/pet-waste-stations?gclid=CPvM1cuhoaYCFUHs7QodkyEoZw

Bag refill program: http://www.petwasteeliminator.com/refill-program

Pet-Waste sign: http://www.pbp1.com/Property/Product/SN309

A good reference for "How to Set Up a Pet Waste Survey":
http://des.nh.gov/organization/divisions/water/wmb/coastal/documents/pet_survey_guide.pdf

Potential Residential and Urban Stormwater BMPs (10 mins)

Table 4 shows a list of potential BMPs that filter/store/prevent stormwater runoff from residential and/or commercial land uses. Take the time to discuss which of these BMPs are most likely to be implemented in the

project watershed and which stakeholders would like to see in the IP. The right-most column shows how we can include these BMPs in the Plan. Either the treated area can be Quantified using the bacteria load model or we would simply Promote the BMP within the IP project watershed knowing it will have a positive impact on the watershed.

Table 4. Potential Residential and Urban SW BMPs to include in this IP project.

Practice	Difficulty of Installation	Runoff Treated from	How to Include in IP
Urban Trees	Easy	Residential/Commercial	Promote
Riparian Forest Buffer	Easy	Residential/Commercial	Quantify
Upland Reforestation	Easy	Residential/Commercial	Promote
Gutter Disconnect	Easy	Residential/Commercial	Quantify
Rain Barrel	Easy	Residential	Quantify
Bay Scape	Medium	Residential/Commercial	Promote
Simple Raingarden	Medium	Residential	Quantify
French Drain	Medium	Residential	Promote
Dry Well	Medium	Residential	Promote
Level Spreader	Medium	Commercial	Promote
Pervious Pavers	Medium	Residential/Commercial	Quantify
Grassed swale	Medium	Commercial	Promote
Infiltration Trench	Medium	Residential/Commercial	Quantify
Cistern	Difficult	Residential/Commercial	Quantify
Bioretention	Difficult	Commercial	Quantify
Engineered Raingarden	Difficult	Residential/Commercial	Quantify
Retention Ponds	Difficult	Residential/Commercial	Quantify
Retro-fitted Green Roofs	Difficult	Commercial	Quantify
Other Innovative Projects	?	Residential/Commercial	Promote

Maps

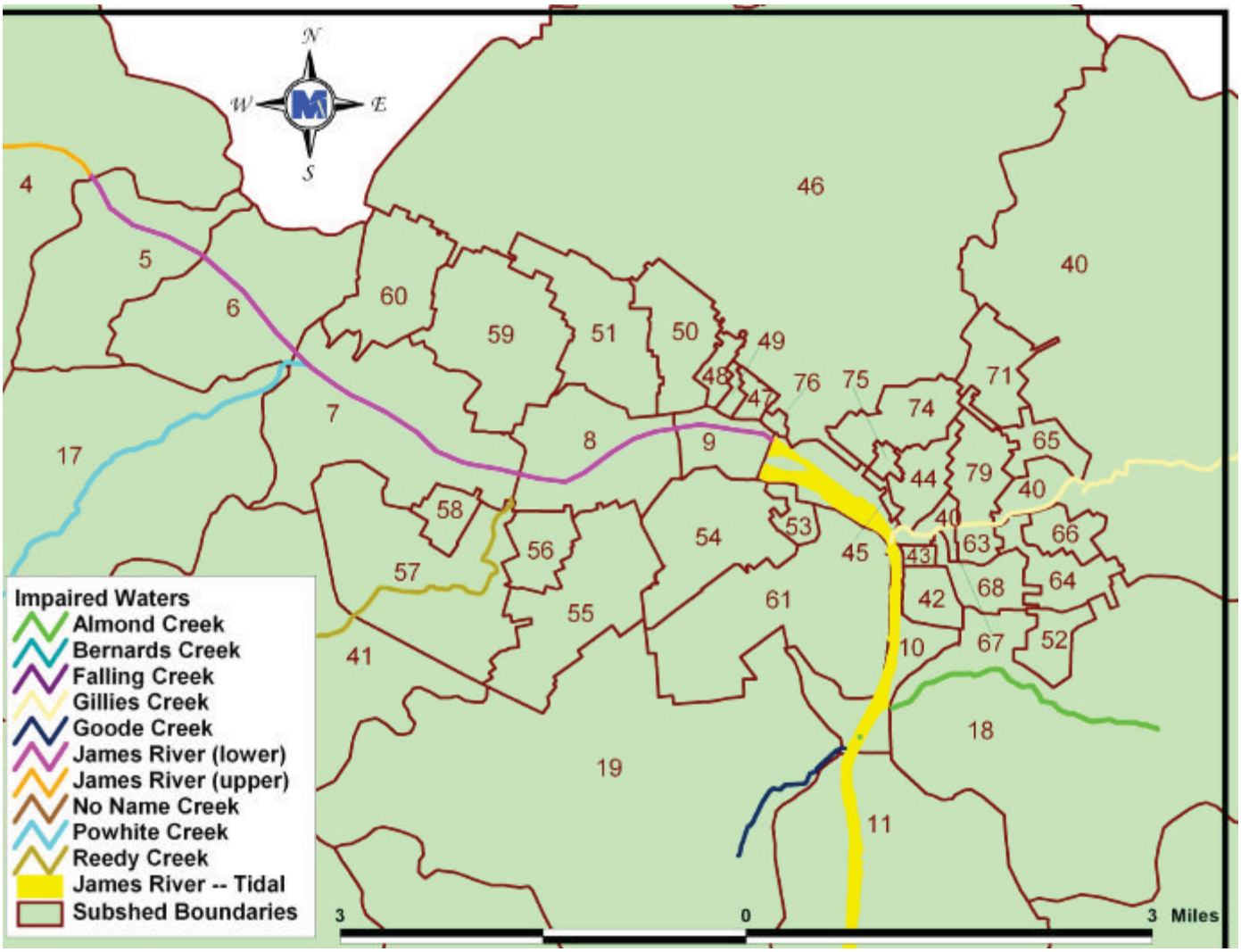

Figure 1. Subwatersheds in the IP study area zoomed into Richmond.

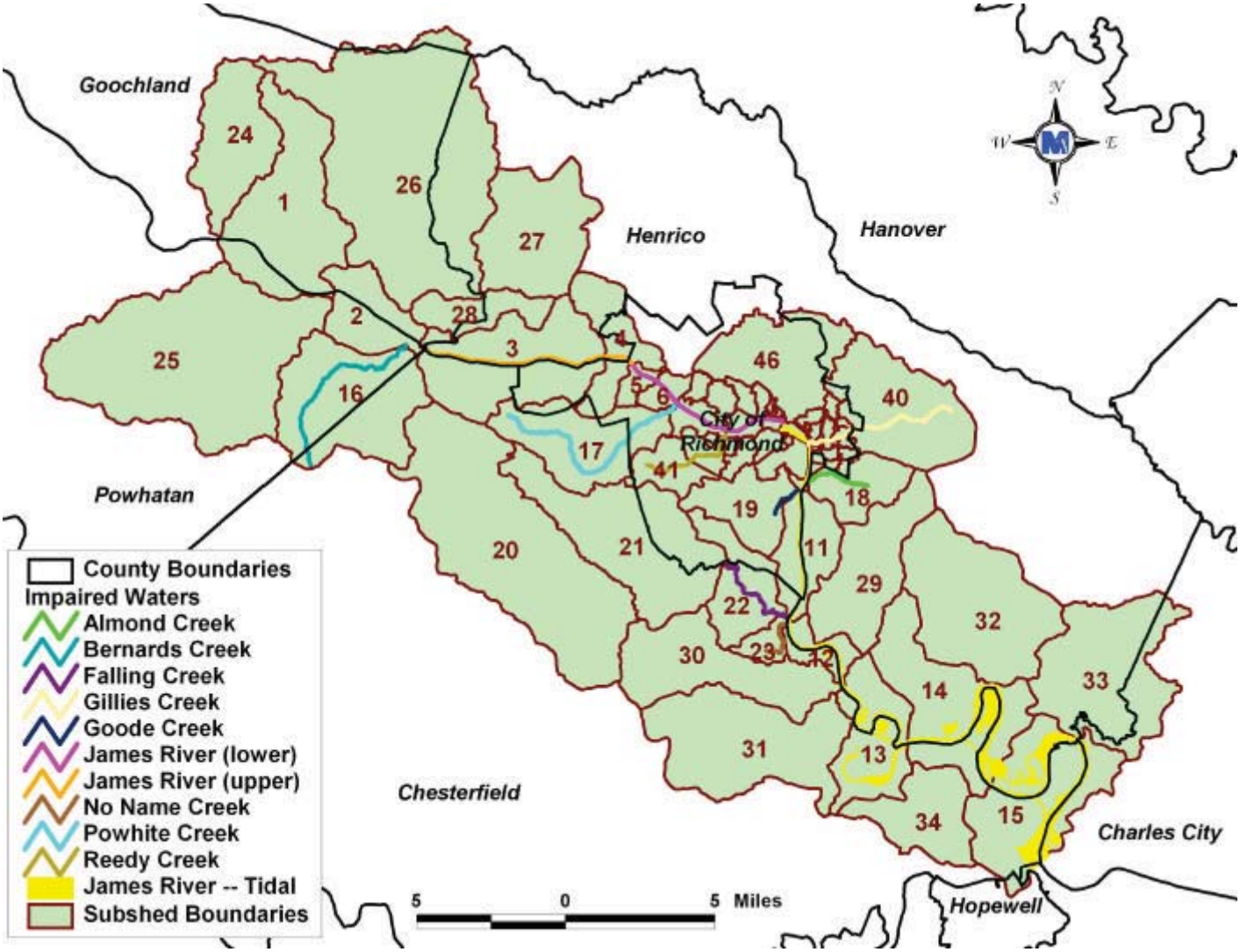

Figure 2. Subwatersheds and County boundaries in the IP study area.

Tuckahoe Creek will be added to all maps (see Figure 7)

Table 4. Subwatershed numbers with Stream Name and Counties within the subwatershed.

Sub#	Stream name	Counties	Sub#	Stream name	Counties
1	JR riverine	Goochland, Powhatan	**40**	Gillies Creek	City of Richmond, Henrico
2	JR riverine	Goochland, Powhatan	**41**	Reedy Creek	City of Richmond, Chesterfield
3	JR riverine	City of Richmond, Goochland, Henrico, Powhatan	**42**	JR tidal	City of Richmond, Henrico
4	JR riverine	City of Richmond, Chesterfield, Henrico	**43**	JR tidal	City of Richmond
5	JR riverine	City of Richmond	**44**	Gillies Creek	City of Richmond
6	JR riverine	City of Richmond	**45**	JR tidal	City of Richmond
7	JR riverine	City of Richmond	**46**	JR tidal	City of Richmond, Henrico
8	JR riverine	City of Richmond	**47**	JR riverine	City of Richmond
9	JR riverine	City of Richmond	**48**	JR riverine	City of Richmond
10	JR tidal	City of Richmond, Henrico	**49**	JR riverine	City of Richmond
11	JR tidal	City of Richmond, Chesterfield, Henrico	**50**	JR riverine	City of Richmond
12	JR tidal	Chesterfield, Henrico	**51**	JR riverine	City of Richmond
13	JR tidal	Chesterfield, Henrico	**52**	JR tidal	City of Richmond, Henrico
14	JR tidal	Chesterfield, Henrico	**53**	JR tidal	City of Richmond
15	JR tidal	Charles City, Chesterfield, Henrico, Hopewell	**54**	JR tidal	City of Richmond
16	Bernards Creek	Chesterfield, Powhatan	**55**	JR riverine	City of Richmond
17	Powhite Creek	City of Richmond, Chesterfield	**56**	JR riverine	City of Richmond
18	Almond Creek	City of Richmond, Henrico	**57**	Reedy Creek	City of Richmond
19	Goode Creek	City of Richmond	**58**	JR riverine	City of Richmond
20	Falling Creek	Chesterfield	**59**	JR riverine	City of Richmond
21	Falling Creek	City of Richmond, Chesterfield	**60**	JR riverine	City of Richmond
22	Falling Creek	City of Richmond, Chesterfield	**61**	JR tidal	City of Richmond
23	No Name Creek	Chesterfield	**63**	Gillies Creek	City of Richmond
24	JR riverine	Goochland	**64**	Gillies Creek	City of Richmond, Henrico
25	JR riverine	Powhatan	**65**	Gillies Creek	City of Richmond
26	Tuckahoe Creek	Goochland, Henrico	**66**	Gillies Creek	City of Richmond, Henrico
27	Tuckahoe Creek	Henrico	**67**	Gillies Creek	City of Richmond
28	Tuckahoe Creek	Goochland, Henrico	**68**	Gillies Creek	City of Richmond
29	JR tidal	Henrico	**71**	Gillies Creek	City of Richmond
30	JR tidal	Chesterfield	**74**	JR tidal	City of Richmond
31	JR tidal	Chesterfield	**75**	JR tidal	City of Richmond
32	JR tidal	Henrico	**76**	JR riverine	City of Richmond
33	JR tidal	Charles City, Henrico	**79**	Gillies Creek	City of Richmond
34	JR tidal	Chesterfield			

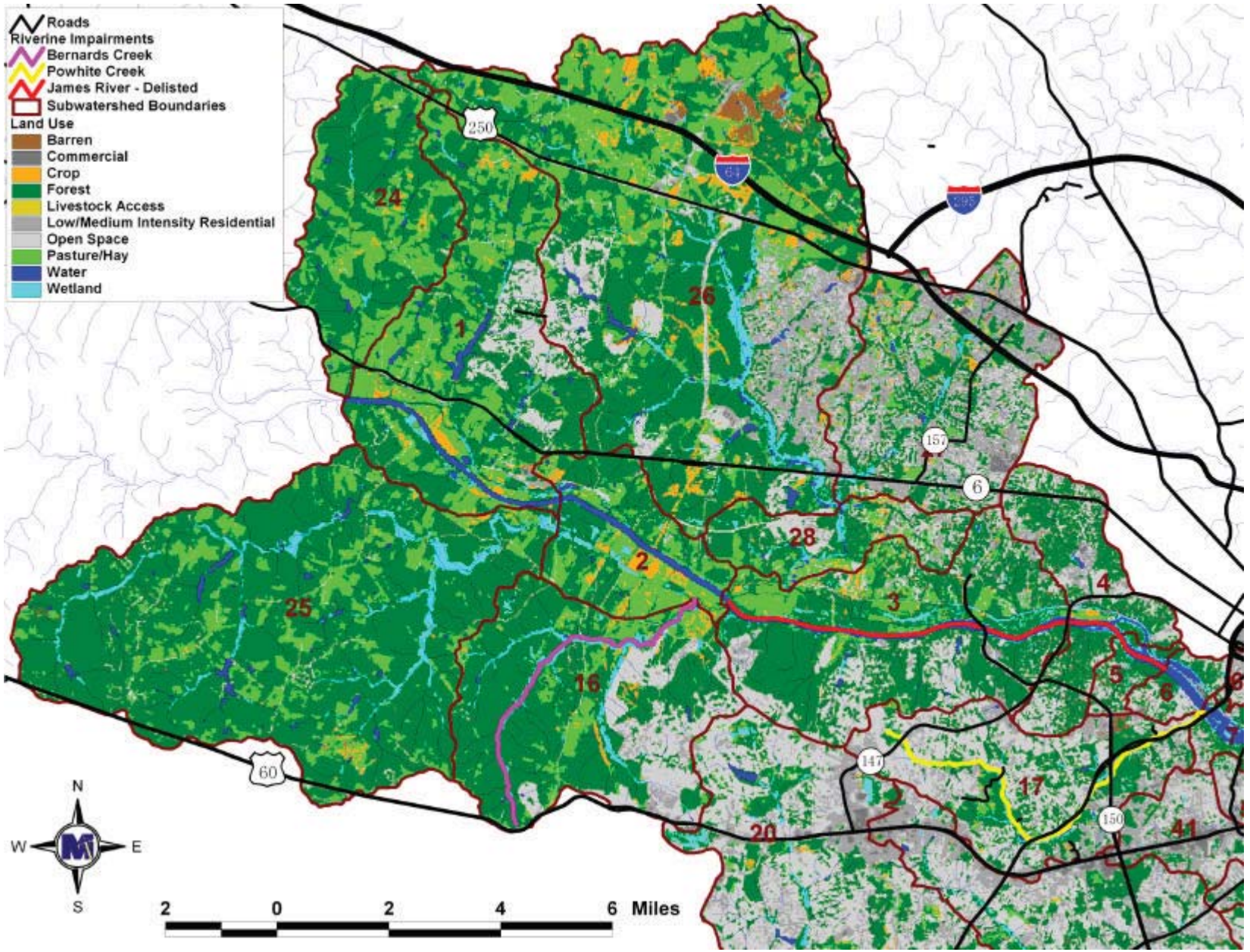

Figure 3. Subwatersheds and Land use zoomed into Bernards Creek, Powhite Creek, Tuckahoe Creek, and JR-delisted.

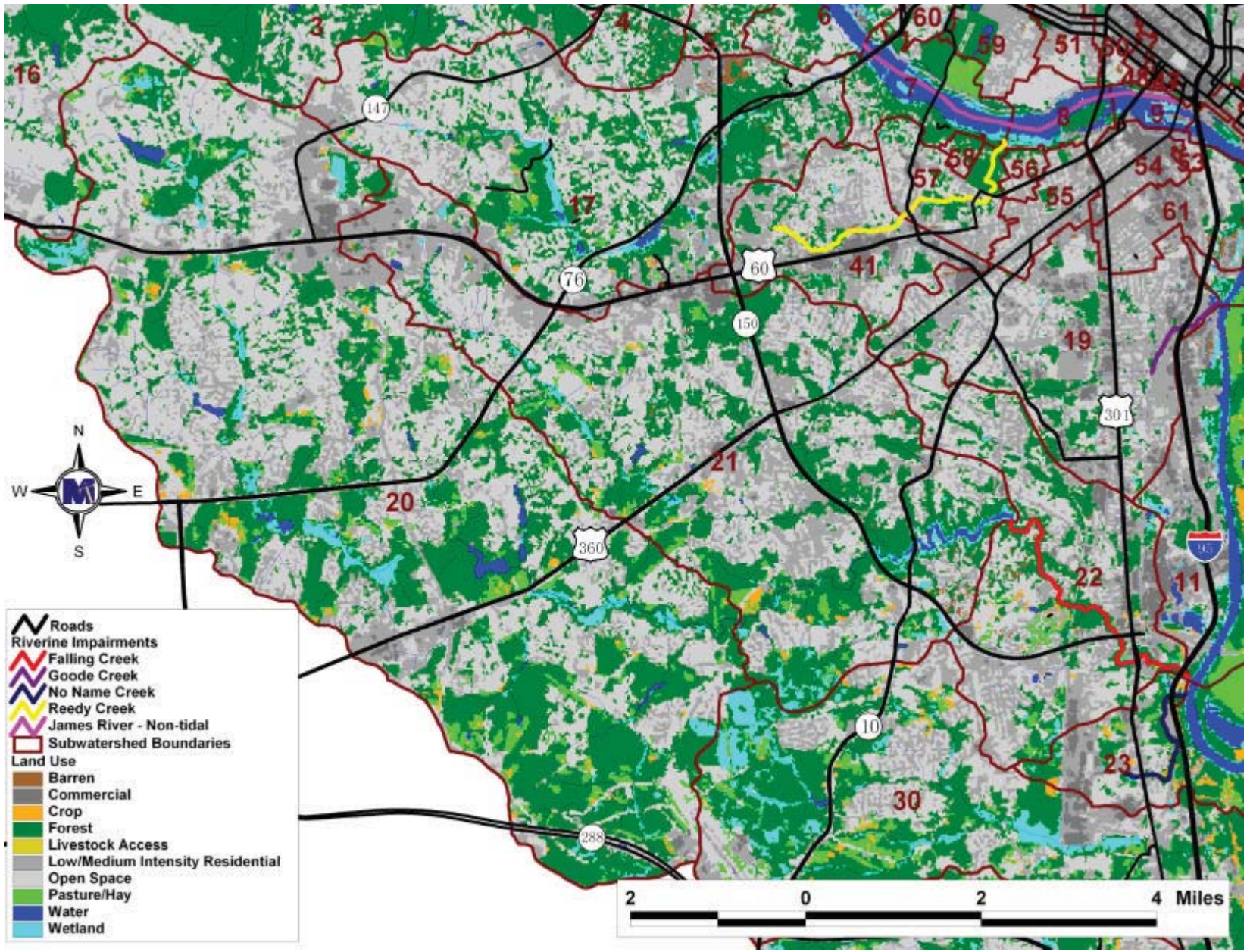

Figure 4. Subwatersheds and Land use zoomed into Reedy Creek, Falling Creek, Goode Creek, No Name Creek, and James River riverine.

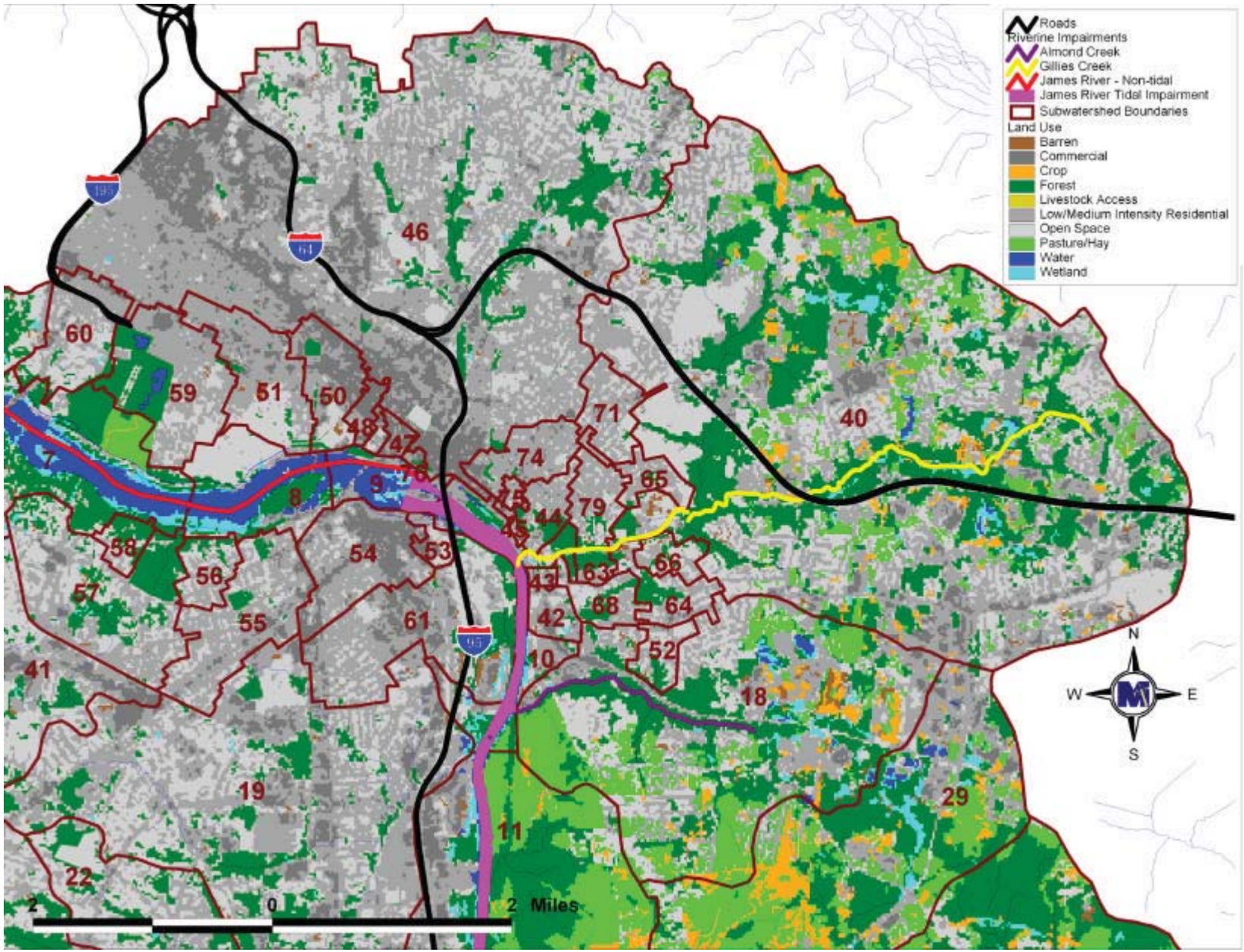

Figure 5. Subwatersheds and Land use zoomed into Gillie Creek, Almond Creek, and James River riverine.

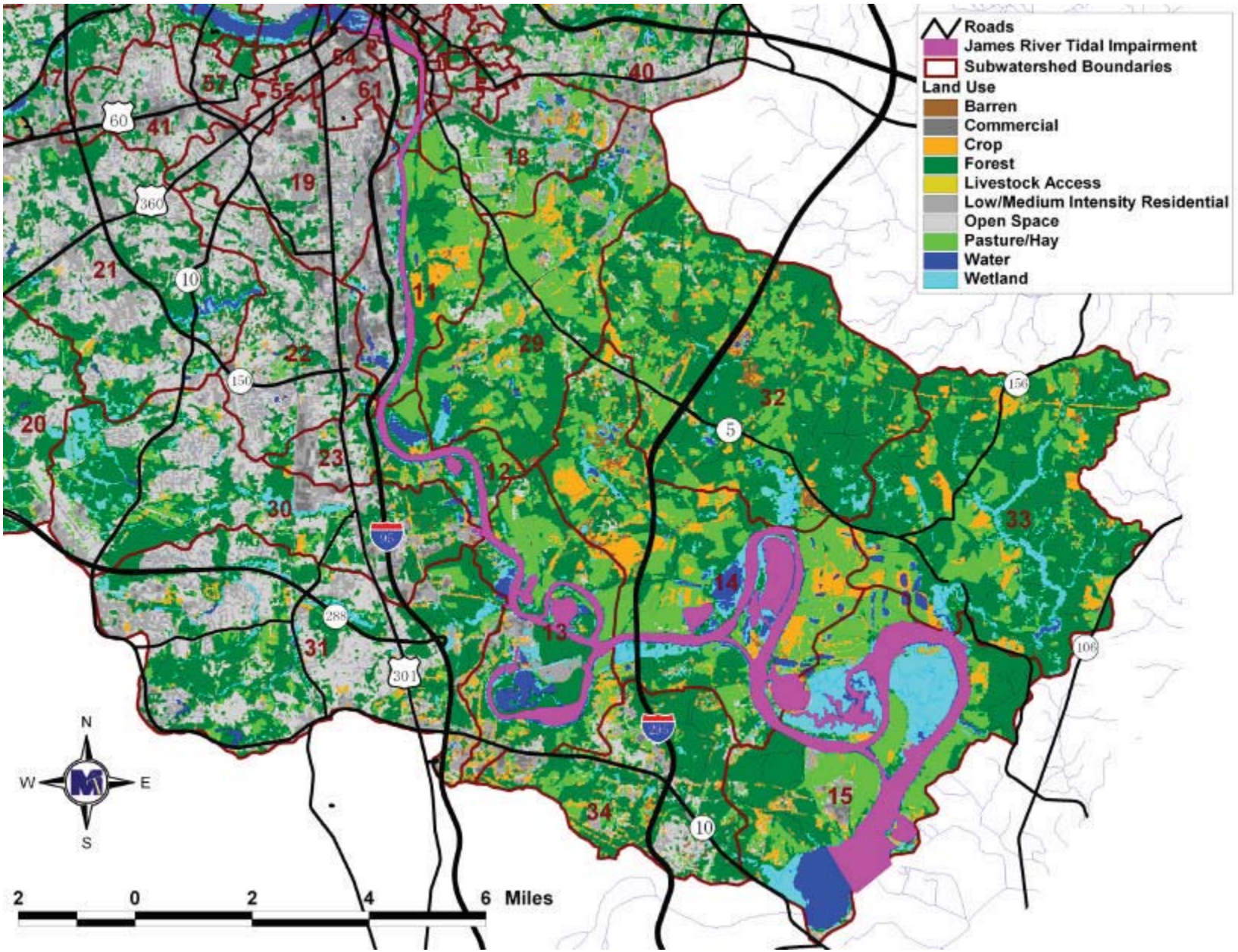

Figure 6. Subwatersheds and Land use zoomed into James River tidal.

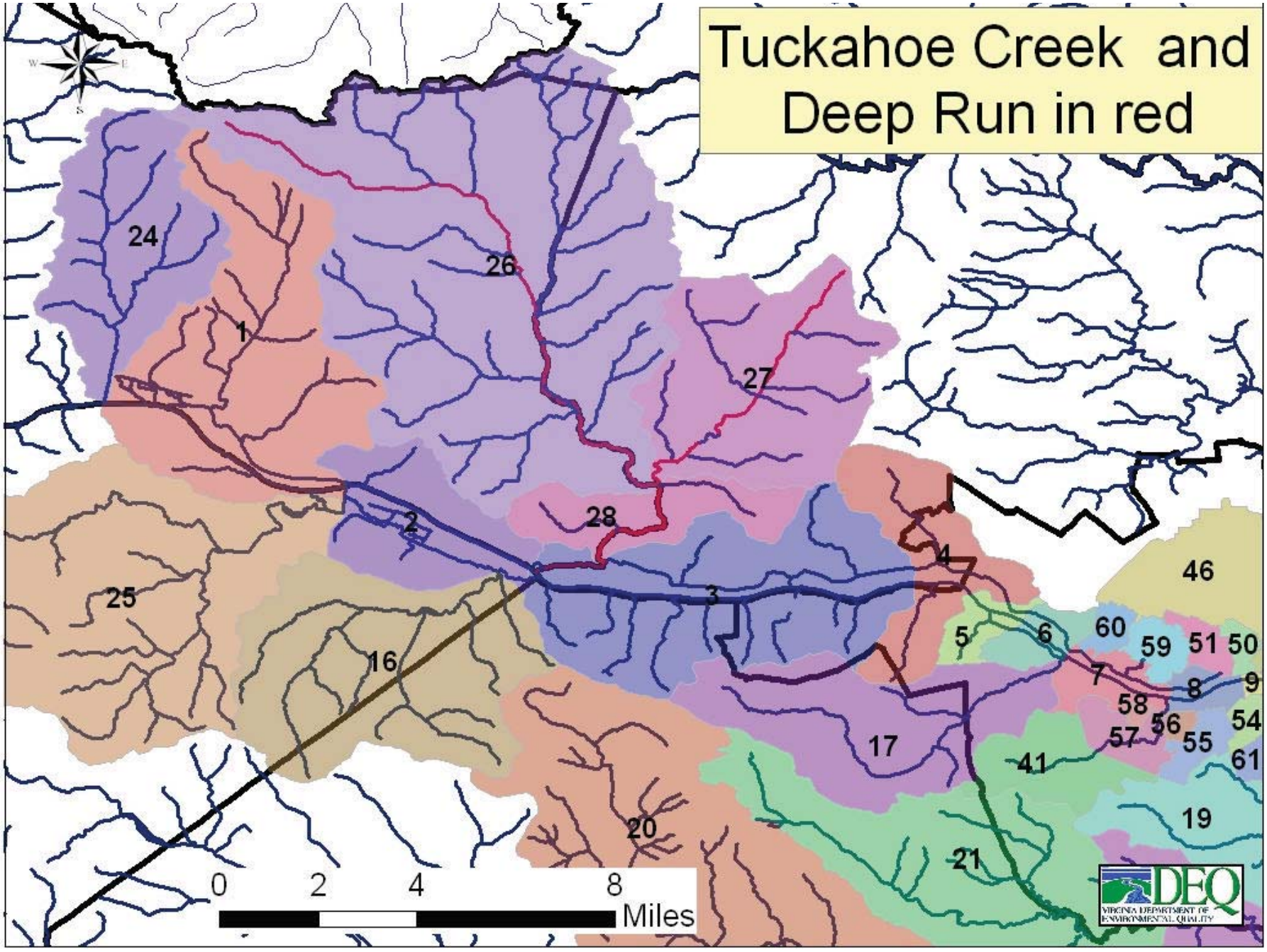

Figure 7. Tuckahoe Creek and tributary Deep Run outlined in Red